



# Imperial Agricultural Bureaux

## Twelfth Annual Report

OF THE

### Executive Council

1940-1941

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LONDON

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1942

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# IMPERIAL AGRICULTURAL BUREAUX

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### Representing :

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## PREFACE

The Imperial Agricultural Research Conference, 1927, stressed (a) the need for scientists to be in touch with the progress of research throughout the world in their several branches, and (b) the difficulty therein owing to the great output of scientific literature and the diversity of languages in which it is published.

2. It recommended the Governments of the British Commonwealth to establish on a joint co-operative basis eight bureaux to collect, collate and disseminate information on research in eight selected branches of agricultural science and generally to assist research workers in the Empire with information relevant to their subjects. Each bureau was to be located at a research Institute specializing in its own branch of science so that the bureau officers should be in daily contact with men engaged on research in its own subject. These bureaux were to be financed from a common fund contributed by Empire Governments in agreed proportions and controlled by a Council composed of representatives of those governments on an equal footing.

3. Governments accepted these proposals. In November, 1928, a new type of inter-Imperial co-operative agency acceptable to all governments was worked out in detail. On 1st April, 1929, the Executive Council of the Imperial Agricultural Bureaux came into being. The eight bureaux started work in that year.

4. Following the Ottawa Conference of 1932 the work of several inter-Imperial agencies was examined and reported upon by the Imperial Committee on Economic Consultation and Co-operation (1933). This Committee approved of the bureaux organization and of its work, and extended the duties of the Council, *inter alia*, proposing that with effect from 1st October, 1933, it should also be responsible for the supervision and administration and finance of the Imperial Institute of Entomology and of the Imperial Mycological Institute.

5. It also enunciated certain general principles to be observed in regard to the organization of agencies for inter-Imperial co-operation and consultation, *e.g.*, Constitutional equality of participating governments in the appointment of the Authority administering the work; the

provision of adequate finance for a definite period of years; careful and periodical examination of the work and organization of the Agency at Empire conferences suitable for the purpose, as without that assurance governments could hardly be expected to provide the adequate continuing finance; responsibility of the administering authority to all participating governments. All Governments accepted this report.

6. The British Commonwealth Scientific Conference (1930) conducted the first of these "periodical examinations." It approved both the work and organization. It recommended the finance necessary until 1941-42, its distribution between governments, also the formation of two more bureaux, and certain modifications in practice designed to improve general efficiency. Governments accepted these proposals.

7. The organizations under the administration of the Executive Council are:—

The Imperial Institute of Entomology, with its branch, the Laboratory for Biological Control of Insect Pests.

The Imperial Mycological Institute and the Imperial Bureaux of

Soil Science.

Animal Health.

Animal Nutrition.

Animal Breeding and Genetics.

Plant Breeding and Genetics.

Pastures and Forage Crops.

Horticulture and Plantation Crops.

Agricultural Parasitology (Helminthology).

Dairy Science.

Forestry.

8. A "liaison" officer appointed by the appropriate department in each participating country keeps in touch with administrative matters, and in each country for each bureau a scientific officer is nominated as Official Correspondent to be "the general friend" on scientific matters of that bureau in that country. The Heads of the several Institutes at which bureaux are located act as Directors of the bureaux, thus giving the Council and bureaux the benefit of their wide experience and scientific knowledge. All other officers are whole-time servants of the Executive Council.

As a war economy, the usual list of publications has been omitted from this report. Copies of the 1942 List are however, available for those desirous of consulting them, and will be supplied on application to:

The Imperial Agricultural Bureaux, Central Sales Branch,  
Agricultural Research Building, Penglais, Aberystwyth, Wales,  
or to The Secretary, Imperial Agricultural Bureaux,  
2, Queen Anne's Gate Buildings, Dartmouth Street, London, S.W.1

## REPORT

At its meeting on 22nd January, 1942, the Executive Council of the Imperial Agricultural Bureaux adopted the following report relating to its twelfth year's work—1st April, 1940, to 31st March, 1941.

### Chairman—Dr. William Allen

2. It is with the greatest regret that the Council has to record the death of its Chairman, Dr. Allen, through enemy action in the summer of this year. Dr. Allen as much by his personal qualities as by his knowledge of Canadian agriculture and by his interest in the work of the institutes and bureaux under the administration of the Council had endeared himself to all Members. They have lost a valued colleague and one well fitted to be Chairman.

### General

3. The intensification of the war—especially following the collapse of France—inevitably affected all the Institutes and Bureaux. The receipt of scientific information from Continental Europe, except Russia, practically ceased for a time. Little has since come out from enemy and enemy occupied countries; the receipt of that from Russia has been subject to unknown delays. Subscriptions from Continental Europe outside Russia have almost entirely lapsed.

Subject to unavoidable postal delays, information from the rest of the world continues to reach the Institutes and Bureaux in volume more nearly equal to that of pre-war days than was expected. Requests from Government Departments for information on subjects arising directly out of war conditions have been received by all these organizations either directly, or more often in the case of the bureaux, through the Institutes at which they are located. The Directors of several of these Institutes have stated that they could not have dealt with these enquiries if they had not had the bureaux behind them with all their information indexed and tabulated.

Except that the publication of Herbage Reviews has been temporarily suspended with effect from 1st January, 1941, all the Journals have gone out regularly to time. Some are somewhat thinner owing to the stoppage of information from Europe and to closer printing or re-arrangement to economise paper.

4. The decrease in the number of subscribers and the general increase in costs of commodities due to war conditions have affected adversely the finances of all the Institutes and Bureaux. To some extent these effects have been offset by reductions in staff justified by the smaller volume of European publications received and by the arrangements made for dealing with subscriptions and orders through a Central Sales Branch. In September, 1941, the Assistant and Clerical grades in the bureaux were between 20 and 25 per cent. below pre-war sanctioned strength. Further reductions in these individually small organizations are nearly impossible.

### The Central Sales Branch

5. During the year a Central Sales Branch for all bureau publications except Nutrition Abstracts and Reviews—sales of those issued by the Institutes of Entomology and Mycology remain with those Institutes—was organised under Dr. Whyte at

Agricultural Research Building,  
Penglais,  
Aberystwyth.

This is also the address of the Bureau of Pastures and Forage Crops. This branch also distributes the publications. This has thrown a mass of detailed work on Dr. Whyte, which he is tackling successfully. Equally it has relieved bureaux of many small transactions and much book-keeping which has helped to make some of the reductions in junior staff possible. It has other more direct advantages, the full benefit of which should be reaped after the war. Purchasers of publications and subscribers to the journals of several bureaux can now send consolidated demands and pay for all in one transaction. Uniformity in practice in the matter of foreign exchange is assured. Postage charges are slightly reduced. Consolidated notices of forthcoming or recently issued occasional publications of the bureaux can be more regularly issued. This Central Sales Branch has been established as much in the interest of purchasers of bureaux publications as of the bureaux. It is hoped that purchasers and subscribers will use it increasingly. It is not an organization intervening between bureaux and their constituents. It is merely a simplification of business machinery. Each bureau is kept informed of the subscribers to its journals and of the purchasers of its occasional publications.

Freedom of correspondence between any bureau and the scientists it can serve is in no way impaired.

6. Concurrently with this change, arrangements were made to carry a stock of occasional publications of all bureaux at the Head Office. This was for the convenience of London book-sellers who now send and get what they need instead of having to write to several bureaux.

In some of the bureaux, space for storage of back numbers of publications was becoming difficult. Space for these has been obtained at the Central Sales Branch, Aberystwyth.

#### Publications

7. Receipts from sales of publications, including journals, back numbers and occasional publications, compare as follows with those in previous years.

	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41
Imperial Institute of Entomology	£ 2,540	£ 2,447	£ 2,524	£ 2,779	£ 2,444	£ 2,037	£ 1,798
Imperial Mycological Institute ..	676	698	600	961	1,092	904	670
The Bureaux, including Nutrition Abstracts and Reviews !.	2,900	3,895	4,714	5,068	5,704	5,910	5,247
Total .. .. .	6,216	7,040	7,937	8,808	9,240	8,851	7,715

A fall of £1,525 in receipts as compared with 1938-39, the last pre-war year, is substantial, but the total sales were still five-sixths of what they were in that year. When it is remembered that practically all subscribers and purchasers in Continental Europe, outside Russia, have been

lost at least temporarily, this high proportion shows a very steady, probably still increasing demand for these publications, in the countries of the British Commonwealth and in the United States of America.

The figures for the several bureaux are as follows:—

	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41
Soil Science . . . . .	£ 103	£ 404	£ 276	£ 306	£ 600	£ 478	£ 358
Animal Health .. .. .	1,328	1,287	1,373	1,293	1,166	1,146	1,084
Animal Nutrition .. .. .	16	20	12	29	25	21	29
Animal Breeding and Genetics ..	151	160	156	229	294	203	227
Horticulture and Plantation Crops	126	160	151	241	373	393	286
Pastures and Forage Crops ..	130	208	217	444	521	413	422
Plant Breeding and Genetics ..	128	131	208	258	314	406	320
Agricultural Parasitology (Helminthology) .. .. .	22	353	295	364	316	228	224
Dairy Science .. .. .	—	—	—	—	5	335	283
Forestry .. .. .	—	—	—	—	3	202	195
Headquarters .. .. .	13	4	46	2	17	10	22
Total . . . . .	2,023	2,727	2,794	3,166	3,634	3,844	3,450
Nutrition Abstracts and Reviews	973	1,108	1,020	1,902	2,070	2,066	1,797
Total .. .. .	2,996	3,895	4,714	5,068	5,704	5,910	5,247

8 Technical and Occasional Publications issued by the bureaux within the year, comprise :

<i>Title.</i>	<i>Issued by the Bureau of</i>
Rabbit feeding for Meat and Fur.	Animal Nutrition.
The feeding of Camels.	Animal Nutrition.
Rothamsted field experiments on the Growth of Wheat.	Soil Science.
Potato Expeditions to Mexico and South America.	Plant Breeding and Genetics.
Grasslands of Argentina and Patagonia.	Pastures and Forage Crops.
Haricot Beans.	Horticulture and Plantation Crops.

Also were prepared during the year but issued subsequent to March, 1941 :—

The Efficiency of Farm Animals in the Conversion of Feeding Stuffs for Human use.	Animal Nutrition.
New and Promising Varieties of Crops described in recent literature.	Plant Breeding and Genetics.

9. The first purpose of an Abstract Journal is to bring as promptly as is possible to the notice of research workers, the purport of every publication or paper of importance. As the years pass the several annual volumes of these journals serve another equally useful service—viz., that of a work of reference in which notice of papers dealing with a particular subject can be found. Their utility in that respect is much increased by the compilation of consolidated subject and author indexes covering several annual issues. These require much labour to prepare, especially as relates to those earlier volumes of a series which were issued before the desirability of such consolidated indexes was foreseen. In the year under review consolidated indexes covering the first five years of Nutrition Abstracts and Reviews, of the first ten years of Horticultural Abstracts and also the third of the series in the Bibliography of Soil Science—this one covering all such literature published in 1937–1940, were completed. These three have now (October, 1941) been published. Also considerable progress was made in overtaking arrears of indexing in Animal Breeding Abstracts.

Index Veterinarius, which is a current bibliography of all current information on papers of Animal Health is now (1941) in its ninth year of issue. There is no question of consolidating the entries in it over a period of years. Such entries each year are too numerous. It is issued half yearly.

The index of each volume of Helminthological Abstracts is a Bibliography of Helminthology for the year.

It is hoped that these several indexes will further enhance the utility of the various journals.

### The Imperial Institute of Entomology

10. Five of the staff of this Institute left during the year. One has been reported missing in the Middle East. The war has affected the work of identification more than that of the collection, abstracting and distribution of information, yet much more has been done than might have been expected. 33,639 specimens were received for identification as against 71,516 in 1939–40. These are not, of course, all different kinds. Many duplicates are needed to make a correct identification and many such are rightly sent. In the work of identification progress was made with arrears which had accumulated. 223 (337) lists comprising 5,287 (7,781) names were sent out. 8,534 (12,790) insects were handed over to the British Museum of which 108 (256) were new to science and another 133 (512) had not been previously represented in the Museum Collection. Figures in brackets are those of the previous year.

11. *Publications.* The fall in the number of subscribers to the Institute's journals was less than was expected, viz., 10 per cent. for the Review, 5 per cent. for the Bulletin, but 20 per cent. for Zoologica Insecta.

The most notable publication of the year was one for which the Institute was not directly responsible, but with which, through Dr. Neave, it was very closely associated. That was the completion of the Nomenclator Zoologicus, the last volume of which (Vol. IV) appeared in November, 1940. The whole work contains about 227,000 entries and has been carried through promptly and thoroughly, the first volume being issued in July, 1939. The whole work, which is priced at £10 10s., brings the record of names up to the end of 1935. It was "fathered" by the Zoological Society of London and entomologists at the Natural History

Museum gave their expert help with the nomenclature.

A similar compilation had been initiated by the Prussian Academy of Sciences in 1925, working on records up to 1921, but had not been completed when war broke out.

#### **Farnham House Laboratory**

12. The circumstances which led to Dr. Thompson's temporary transfer to Canada are related in last year's report. The Laboratory at Farnham House has been let for the duration of the war, use of insectaries and cold store being retained. Of the staff of assistants who in 1940 were either disbanded or given notice, three are still engaged on this work and three have left.

A warm welcome in Canada and every assistance in developing this inter-imperial service has been given in Canada to Dr. Thompson. The Council and all entomological departments in all countries in the British Commonwealth are much indebted to the Canadian Authorities for this help. Their interest and assistance has been invaluable.

The disruption of work caused by this transfer was enhanced by the suddenness (due to the circumstances of the moment) with which that decision was taken and the speed with which it was put into effect. The fear that Dr. Thompson might receive few orders proved entirely wrong. After a few months of uncertainty it was clear that several countries in the British Commonwealth were anxious to test the possibilities of the North American Continent as a source of beneficial parasites, and Dr. Thompson received requests considerable in number and diverse in range. The administrative problem suddenly turned from one of disbanding staff to one of finding him suitable assistants. Meanwhile field work in the United Kingdom was still possible. In the end two of the established assistants have been kept on this work. Dr. Cameron, the senior, was retained in the United Kingdom, Dr. Lloyd went to Canada. Of the other two Dr. Hardy joined the Palestine service and Mr. Hanson the Forestry Commission. Since the close of the year Mr. Simmonds, one of the former junior entomologists attached to Farnham House, has joined Dr. Thompson in Canada.

The closing of the Continent of Europe, all those changes of staff, together with interruptions in sea transport, necessarily reduced very drastically the number of beneficial parasites shipped in the year. Those shipped from the

United Kingdom numbered 53,205 as compared with 689,977 in 1939-40. It is believed that most shipments arrived safely, but in one case at least the insects died en route.

#### **Imperial Mycological Institute.**

13. Mr. Dade, who had been absent for some months on military service, returned to the Institute.

The number of fungi received for identification fell from nearly 500 to 280. On the other hand, 450 herbarium specimens were sent overseas in exchange for specimens received. This follows a distribution of 256 made two years ago. By this means help is given to overseas research centres in building up collections of named specimens of typical fungi. The fall in receipts from sales of publications was relatively severe from £904 to £670.

Four very useful pieces of work were put in hand. Certain changes in cataloguing and indexing were introduced whereby a very fairly complete bibliography of phytopathological literature is being built up. A start has also been made in indexing the specimens in the Herbarium.

Beginning in July, 1941, half-yearly lists are being published of all new genera, species and varieties of fungi mentioned in literature in the previous six months. This is the first attempt ever made at providing a current index of new species of fungi as and when they are described and of their host plants. It should prove very useful to mycologists everywhere, especially to those engaged in systematic studies.

Efforts are being made to record on small maps the distribution of diseases of crop plants throughout the world, with the ultimate object of distributing such maps to countries in the British Commonwealth. The presentation of this information in convenient form was asked for by the Imperial Mycological Conference of 1929.

14. Sir Guy Marshall's and Dr. Wiltshire's reports, more abbreviated than usual, are printed as appendices.

#### **Finance and Accounts**

15. The Comptroller and Auditor General's statements for the Bureaux and for the Institutes of Entomology and Mycology are attached. That for Farnham House, for which accounts from Canada were required, will be attached to next year's report.



*The Bureaux.* Total receipts in the year to the credit of the bureaux were £33,654 5s. 10d., made up of contributions from governments, £29,097 3s. 8d.; adjustments of over-payments to certain Institutes in the previous year, £77 18s.; sales of publications, £3,450 17s.; and contributions by Institutes to Headquarters and interest, £1,028 7s. 2d.

Contributions attributable to the year were £28,116 15s. 5d., being normal, £27,925, plus £191 15s. 5d. from Burma under the arrangement recorded in the report for 1938-39.

	£	s.	d.
Sum attributable to the year ..	28,116	15	5
Arrears outstanding on 31st March, 1940 .. ..	980	8	3
Total due in the year ..	29,097	3	8
Received in the year ..	29,097	13	8
Balance over-received being excess payment by Colonial Empire .. ..	10	0	

On 31st March, 1941, there were therefore no arrears outstanding on bureaux contributions. This payment of substantial arrears, most of which had arisen from a difficulty in Australia over Forestry which was solved in the year, counterbalanced the decreased receipts from sales of publications, interest and contributions to Headquarters, which in all totalled £876 9s. 3d. It also enabled the total expenditure in the year (£33,259 13s. 9d.) to be covered by the receipts in the year. This temporary advantage cannot, of course, be repeated.

Savings from reductions in staff, etc., referred to earlier in this report, did little more than offset the effect of increments in salaries and general rising costs due to war—expenditure in the year being £241 8s. 4d. below that in 1939-40.

*Imperial Institute of Entomology.* Total receipts in the year (£15,877 16s. 10d.) were made up of contributions from Governments (£13,003 18s. 10d.); sales of publications (£1,798 6s. 1d.), and contributions from foreign governments, learned societies, interest and miscellaneous receipts (£1,075 11s. 11d.).

Contributions from governments attributable to the year were £13,482, made up of £13,442 normal, plus £40 from Burma, under the arrangement recorded in the report for 1938-39.

	£	s.	d.
Sum attributable to the year ..	13,482	0	0
Arrears outstanding on 31st March, 1940 .. ..	552	8	0
Total due in the year ..	14,034	8	0
Received in the year ..	13,003	18	10
Balance outstanding on 31st March, 1941 .. ..	£1,030	9	2

This balance was made up of £550 Australia, and £480 9s. 2d. Colonial Empire. Both amounts have since been received.

Receipts from sales of publications were £238 18s., less than those in the previous year; contributions from foreign governments, learned societies, interest and miscellaneous receipts were £22 2s. 7d. greater.

Reductions in staff and other economies did little more than counterbalance increments in salaries and general rising costs. Total expenditure at £16,436 11s. 4d. was £36 0s. 10d. below that in 1939-40 (£16,472 12s. 2d.). It exceeded the receipts in the year by £558 14s. 6d., though this sum was covered by the contributions (£1,030 9s. 2d.) outstanding on 31st March, 1941, and since received.

*Imperial Mycological Institute.* Total receipts in the year (£8,544 15s. 10d.) were made up of contributions from governments, £7,658 4s.; receipts from sales of publications, £670 8s. 9d.; contributions by foreign governments, learned societies, interest, £216 3s. 1d.

Contributions from governments attributable to the year were £7,940, made up of £7,900 normal and £40 from Burma under the arrangement recorded in the report for 1938-39.

	£	s.	d.
Sum attributable to the year ..	7,940	0	0
Balance outstanding on 31st March, 1940 .. ..	369	14	0
Total due .. ..	8,309	14	0
Received in the year .. ..	7,658	4	0
Balance outstanding on 31st March, 1941 .. ..	£651	10	0

This balance was made up of £350 Australia and £301 10s. Colonial Empire. Both sums have since been received.

Receipts from sales of publications were £263 9s. 7d. less than in the previous year; contributions from foreign governments, learned societies and interest were £180 0s. 10d. less than in 1939-40, though £175 was received towards this after the close of the financial year.

Total receipts in the year were down by £645 6s. 5d., but total expenditure (£7,984 8s.) being £936 1s. 8d. below that in 1939-40 (£8,920 9s. 8d.) was covered.

### South American Potatoes

16. A full report on the progress of this work was submitted to governments on 1st January, 1941. This was followed by another on 31st July, 1941, submitting proposals for 1942-43 and subsequent years. An account of the expedition and its work written by Mr. Hawkes was published by the Imperial Bureau of Plant Breeding and Genetics as a Technical Communication, entitled "Potato Collecting Expeditions in Mexico and South America."

Mr. Hawkes was at work at Cambridge throughout the year on classification of the material collected and growing it on. Samples were despatched to several Empire countries. The Royal Society made a grant of £100 towards Mr. Hawkes salary, which the Council very greatly appreciated, both for the assistance so given and as a recognition of the potential scientific value of this work.

The authorities at Cambridge continued to give every help and the work has been most economically conducted. The total cost charged to the potato fund in the year was £232 2s. 11d.

### The Research Schemes

17. *Low Temperature Research.* The contributions paid through the Executive Council, 1940-41, were:—New Zealand (£2,000), the Union of South Africa (£850) and Southern Rhodesia (£50).

*Wool Industries Research Association, Torridon.* In this case the sums paid through the Council were:—Australia (£1,000), New Zealand (£300) and Union of South Africa (£400).

In neither case were any arrears outstanding at close of the year.

### Chairman and Vice-Chairman

18. Mr. Shamaldhari Lall, Officiating High Commissioner for India, who, in his capacity as Vice-Chairman has acted as Chairman during the absence of, and since the regretted loss of Dr. Allen, has been elected Chairman at the meeting at which this report was adopted. At the same meeting Mr. J. A. Calder (Colonies, Protectorates and Mandated Territories) was elected Vice-Chairman in succession to Mr Shamaldhari Lall.

S. LALL,  
*Chairman.*

# EXECUTIVE COUNCIL, IMPERIAL AGRICULTURAL BUREAUX

AMOUNT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 1941.

## RECEIPTS.

	£	s.	d.	£	s.	d.
Balance on 1st April, 1940.						
General Account ..	1,394	1	11			
Potato Expedition Fund ..	431	15	10			
Journal of Dairy Research ..	100	0	0			
Contributions from the Governments of the Empire and Sudan to (a) Imperial Agricultural Bureaux ..				1,925	17	9
(b) Various Institutes	12,886	1	9			
Less paid over ..	12,806	14	4			
Contributions by Institutes towards cost of Headquarters ..				29,097	13	8
Interest and Dividends ..				530	0	0
Journal of Dairy Research.				498	7	2
Net receipts ..				41	0	0

## PAYMENTS.

	£	s.	d.	£	s.	d.	£	s.	d.
Expenditure incurred by Imperial Bureau of:—									
Soil Science (Rothamsted) ..	2,915	12	6	357	13	11	2,557	18	6
Animal Nutrition (Aberdeen)	3,256	2	8	28	13	6	3,227	0	2
Animal Health (Weybridge)	6,160	12	11	1,083	14	2	5,076	17	11
Animal Breeding and Genetics (Edinburgh) ..	2,000	10	0	227	7	4	2,073	3	5
Horticulture and Plantation									
Crops (East Malling) ..	2,626	11	8	285	16	8	2,340	15	0
Pastures and Forage Crops (Aberystwyth) ..	3,436	16	8	422	4	11	3,014	11	9
Plant Breeding and Genetics (Cambridge) ..	2,918	9	2	320	5	10	2,598	3	4
Agricultural Parasitology (Helminthology) (St. Albans) ..	2,000	8	9	223	16	8	1,776	12	1
Dairy Science (Shinfield) ..	1,785	2	5	283	13	6	1,501	8	11
Forestry (Oxford) ..	2,394	4	4	195	11	3	2,198	13	1
Secretariat ..	2,865	2	10	21	19	3	2,843	3	7
	33,259	13	9	3,450	17	0	29,808	16	9
Potato Expedition Fund ..							232	2	11
Deposited in Post Office Savings Bank							1,191	7	2
Balance on 31st March, 1941.									
H.M. Paymaster General							£2,480	1	11
Less Outstanding Orders							2,220	14	8
							259	7	3
Sub-Accountants and Deposit Accounts ..							680	11	11
							*939	19	2
							£32,172	0	0

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account is correct.

(Signed) G. C. UPCOTT,  
Comptroller and Auditor General.

EXECUTIVE COUNCIL,  
IMPERIAL AGRICULTURAL BUREAUX,  
4th September, 1941.

\* Includes £199 12s. 11d. held on behalf of the Potato Expedition Fund, and £141 0s. 0d. held on behalf of the Journal of Dairy Research.

Investments at 31st March, 1941.  
£4,000 5% Conversion Loan 1944/44 at cost .. .. . 4,152 16 0  
£2,000 4% Commonwealth of Australia regd. stock 1955/70 at cost .. .. . 1,940 4 0  
£4,000 3% " " " " 1939/44 at cost .. .. . 3,959 14 6  
Post Office Savings Bank .. .. . 5,849 4 10

(Signed) W. G. IVES,  
Accountant to Council.  
(Signed) DAVID CHADWICK,  
Secretary.

IMPERIAL INSTITUTE OF ENTOMOLOGY

### ACCOUNT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31st MARCH, 1941.

## RECEIPTS.

	£	s.	d.	£	s.	d.
Balance on 1st April, 1940.				7,320	14	1
Contributions from						
Empire Governments	13,003	18	10			
Foreign Governments	375	0	0			
Societies	..	..	5 0			
				13,534	3	10
Interest and Dividends..	..	..		495	6	11
Sale of Publications	..	..		1,798	0	1
Sale of surplus works in library	..	..		50	0	0

## PAYMENTS.

	£	s.	d.
Salaries, Director, etc.	2,400	0	0
F.S.S.U. contributions	240	0	0
Salaries, Scientific Staff	7,198	15	11
F.S.S.U. contributions	683	10	8
Salaries, whole-time staff	2,566	3	2
F.S.S.U. contributions	222	15	7
Salaries, part-time staff	23	18	11
National Insurance..	24	6	8
Travelling Expenses	7	1	1
Books, Publications	89	0	2
Bulletins	1,862	10	7
Stationery, Postages, Telephones	147	8	8
Rent, Rates, Insurance	375	13	2
Housekeeping, Light, Heat, Water, Cleaning	320	19	0
Laboratory Equipment	9	16	5
Contingencies	6	14	3
Contribution towards Headquarters and Audit Fee, 1940/41	260	0	0
Furniture	14	11	1
	10,438	11	4

**Balance on 31st March, 1941.**

Account.	1900.	1901.	1902.
Joint Colonial Fund .. ..	5,000	0	0
Crown Agents for the Colonies ..	1,281	7	6
H.M. Stationery Office .. ..	600	0	0
Sir Guy Marshall .. ..	72	0	2
F.S.S.U. Suspense .. ..	109	1	11

Less Widows' and Orphans' Insurance  
Employees' contribution .. ..

£23,498 10 11	7,001 19 7
£23,498 10 11	£23,498 10 11

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account is correct.

Investments on 31st March, 1941.

	Queensland	1922/47	Stock 3% at cost			
£1,040	5	1956/66	"	4%	"	1,000
£1,000	0	Cyprus	1956/66	"	4%	950
£2,679	19	Funding	1960/90	"	"	1,869
£1,000	0	Jamaica	1952/62	"	4%	940
£1,017	16	Kenya	1961/71	"	4½%	998
£1,000	0	India	1960/55	"	4½%	936
£1,000	0	Nigeria	1963	"	4%	881
						7
						0

(Signed) G. C. UPCOTT,  
Comptroller and Auditor General

(Signed) GUY A. K. MARSHALL,  
Director.

(Signed) DAVID CHADWICK,

(Signed) W. G. IVES,  
Accountant to Council.

• Secretary of the Imperial Agricultural Bureaux.

# IMPERIAL MYCOLOGICAL INSTITUTE, FERRY LANE, KEW, SURREY

ACCOUNT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 1941.

## RECEIPTS.

	£	s.	d.	£	s.	d.
Balance on 1st April, 1940	..	..	..	3,803	17	10
Contributions.						
Empire Governments ..	..	7,058	4	0		
Societies ..	..	50	0	0		
Dividends and Interest ..	..	..	..	7,708	4	0
Publications ..	..	..	..	100	3	1
	..	..	..	670	8	0

## PAYMENTS.

	£	s.	d.
Director's Salary ..	..	..	..
Superannuation ..	..	..	..
Scientific and Technical Staff Salaries ..	..	..	..
Superannuation ..	..	..	..
Clerical Staff Salaries ..	..	..	..
Superannuation ..	..	..	..
Laboratory Attendant ..	..	..	..
Superannuation ..	..	..	..
Overtime ..	..	..	..
National Insurance ..	..	..	..
Travelling ..	..	..	..
Purchase of Books ..	..	..	..
Issue of Periodicals ..	..	..	..
Postage, Stationery, etc. ..	..	..	..
Rent, Rates, Insurance ..	..	..	..
Light, Heat, Water, Cleaning ..	..	..	..
Laboratory Apparatus ..	..	..	..
Contingencies ..	..	..	..
Audit Fee and Contribution to Headquarters, 1940/41.	..	..	..
	7,984	8	0

## Balance on 31st March, 1941.

	£	s.	d.
Crown Agents ..	..	..	..
Bank ..	..	..	..
Petty Cash and Stamps ..	..	..	..
Due from Farnham House Laboratory ..	..	..	..
F.S.U. Suspense Account ..	..	..	..
	4,364	5	8

£12,348 13 8

## Investments at 31st March, 1941.

£2,077 15 4 New Zealand 4½% 1944 at cost, £2,000.

I have examined the above Account. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account is correct.

(Signed) W. G. IVES,  
Accountant to Council.

(Signed) G. C. UPCOTT,  
Comptroller and Auditor General.

(Signed) S. P. WILTSHIRE,  
Director.

(Signed) DAVID CHADWICK,  
Secretary,  
Executive Council,  
Imperial Agricultural Bureaux  
11.7.41.

# APPENDIX I'

## IMPERIAL INSTITUTE OF ENTOMOLOGY

### DIRECTOR'S REPORT FOR 1940-41

The war throughout the year has inevitably affected all the activities of the Institute. Council decided to close down the Laboratory and transfer Dr. W. R. Thompson, the Superintendent, to Canada, where he has been able to carry on his work at the Parasite Laboratory, Belleville, Ont., owing to the generous and helpful co-operation of the Canadian authorities. Dr. D. C. Lloyd joined Dr. Thompson in Canada. Dr. E. Cameron remained in this country to carry on certain investigations on which he was already engaged. Mr. R. C. Jeffery was retained here to continue the compilation of the Parasite Catalogue; all the other members of the staff obtained other employment.

The staff in other sections has also been reduced. Dr. C. Ferrière, one of the leading authorities on the Parasitic Hymenoptera, felt compelled to join his family in Switzerland where they were at the time of the fall of France. We have thus temporarily lost his valuable services. Another expert in the same group, Mr. D. S. Wilkinson (a part-time worker) joined the R.N.V.R. He was ordered to the Middle East. Not long after he sailed he was reported missing. Unfortunately no further news of him has been received, but it is still hoped that he may be merely a prisoner of war. The librarian, Mr. C. J. Gollidge, has resigned, and so has a very experienced abstractor, Miss Wharton, on account of her marriage. Mr. T. Miles (abstractor) was called up for military service. For the sake of economy, none of these persons has been replaced.

#### Identification of Insects

The loss of two of our specialists, the inability to make use of numerous foreign experts who used to help us, and the scattering of the entomological collections in various parts of the country for safety's sake, have greatly hampered and restricted the work of identification. The number of insects received for naming was, however, less than half that for last year. On the other hand, this reduction in the receipt of specimens, from the peace-time number of some 2,000 to about 650 a week, has given our entomologists a chance to cope with some of the numerous arrears that had accumulated, and to deal with some of the hundreds of new species that awaited description. In order to facilitate this work, the Keeper of Entomology kindly allowed the retention in London of such portions of the Museum collections as were essential for this purpose.

The despatch of parcels was temporarily suspended during the early months of 1941, but was later resumed. The only losses of which we are aware since the war started are two outgoing and two incoming parcels.

The number of specimens received for identification was 33,030 (71,516). These insects were sent in by 74 (150) different correspondents resident as follows:—Africa 24 (43), America 5 (21), Asia 21 (41), Europe 18 (28), Oceania 0 (17), all the numbers in brackets being those for the previous year.

The lists of identifications despatched totalled 223 (337), comprising 5,287 (7,781) names. The numbers

of identifications sent to the various Dominions, Colonies and other territories are as follows:—

#### AFRICA:

Union of South Africa..	346	(136)		
Southern Rhodesia ..	72	(100)		
Sudan ..	281	(310)		
Gold Coast ..	72	(38)		
Kenya ..	832	(1,332)		
Nigeria ..	48	(132)		
Nyasaland ..	5	(25)		
Sierra Leone ..	91	(28)		
Tanganyika Territory ..	7	(104)		
Uganda ..	276	(651)		
Other Territories ..	588	(534)		
			2,621	(3,290)

#### AMERICA:

Canada ..	—	(—)		
West Indies ..	17	(255)		
Other Territories ..	32	(42)		
			49	(297)

#### ASIA:

India and Burma ..	367	(492)		
Ceylon ..	—	(50)		
Cyprus ..	14	(64)		
Malaya ..	420	(263)		
Palestine ..	576	(897)		
Other Territories ..	713	(1,268)		
			2,090	(2,800)

#### OCEANIA:

Australia and New Guinea ..	197	(330)		
New Zealand ..	10	(91)		
Fiji Islands ..	195	(281)		
Solomon Islands ..	4	(197)		
Other Islands ..	—	(67)		
			406	(966)

#### EUROPE:

United Kingdom ..	69	(204)		
Other Countries ..	43	(164)		
			112	(368)

From the collections received thousands of named specimens are, of course, returned to the senders; but in addition to this 8,534 (12,790) insects have been handed over to the British Museum, of which 108 (250) were types of species new to science, and among the remainder were 133 (512) named species not previously represented in the National Collection.

#### "Review of Applied Entomology"

Dr. Neave reports that the 28th volumes (1940) of the two Series of the "Review of Applied Entomology" comprised 910 pages (exclusive of indices) and 1,786 abstracts and titles (2,250). A decrease was expected. It occurred chiefly with the previous year, in those papers, mainly systematic, which are noticed by titles only. The fall in those papers which being of an economic nature are abstracted, was relatively small.

Owing to the loss of subscriptions from European countries, receipts from sales of most of the publications issued by the Institute fell. The number of subscribers

to the Review dropped from 664 to 595 for Series "A" and from 476 to 441 for Series "B." These losses were partly offset by increased sales of back parts. Receipts for the calendar year 1940 were £1,300 4s. 3d., as compared with £1,386 12s. 6d.

The fall in subscriptions was a good deal less than had been expected. A further fall in 1941 is certain.

#### "Bulletin of Entomological Research"

The 31st volume (1940) of this journal contained 450 pages as against 594 in the previous year. It comprised 29 papers illustrated by 15 plates.

The number of subscribers fell from 407 to 385, but as a result of increased sale of back numbers and reprints receipts in the calendar year 1941 exceeded those in 1940—£746 3s. 7d. as against £719 8s. 11d.

The cost of production was £653 4s. 10d. (printing and paper £484 14s. 11d., illustrations and maps £131 5s. 0d., covers and postages £37 4s. 11d.), being less than receipts by £92 18s. 9d.

#### "Zoological Record," Part "Insecta"

Volume 76 (literature of 1939) contained 3,277 titles as compared with 3,459 in the previous year. The number of subscribers fell from 119 to 96, and the net profit on sales to the Institute was £38 11s. 1d. (£55 10s. 1d.).

The annual contribution of £100 to the funds of the Institute was again made out of the "Zoological Record" fund towards the cost of preparation.

#### Other Publications

The sum of about £20 was received by the sale of various publications, including 13 further copies of Dr. Uvarov's book, "Locusts and Grasshoppers," and 7 of Mr. Taylor's book, "The Biological Control of an Insect in Fiji."

Publication of the "Nomenclator Zoologicus" was completed during the year in spite of the difficult conditions that obtained. Volume 3 appeared in June and Volume 4 in November. This work, which is published by the Zoological Society, comprises more than 3,800 pages and contains about 227,000 entries.

Twenty-six scientific papers have been published by members of the staff during the year.

#### Locust Investigation\*

The routine work of collecting and mapping current locust reports from Africa and Western Asia has been continued, as the reports are being received from most countries, both British and foreign, quite regularly, in spite of the war and the difficulties of communication. The ninth annual survey of the locust situation, for the year 1939, has been prepared, but its publication has

\* This work, although centred at the Institute, is not under the Executive Council. This brief account is included as the work interests several countries in the British Commonwealth.

been postponed until after the war. The tenth survey, for the year 1940, is in the course of preparation, but it will be completed later than usual, as many reports are now received only after a considerable delay.

The international schemes of the permanent organizations for the prevention of locust outbreaks in Africa have been postponed owing to the present conditions. One organization in Northern Rhodesia has been formed for work against the Red Locust (*Nomadacris septemfasciata*). Funds are provided from the Colonial Development Fund, and from contributions from the British territories in East Africa subject to invasions by that locust. Although this organization has been established as a British effort, close collaboration is being arranged with a similar organisation in the Belgian Congo. Working contact is maintained with other neighbouring territories. It is hoped that this organization will form a nucleus for a wider international scheme, which may be arranged after the war.

A systematic study of the climatic factors of the breeding and migrations of locusts in Africa is being continued. Climatic details are being furnished by the Meteorological Office (Air Ministry). A comprehensive summary of literature on locusts and grasshoppers for the last 12 years is in course of preparation.

#### Library

Accessions during the year numbered 213 (277 volumes and 595 (1,002) pamphlets). The Library now contains 10,514 volumes and 27,897 pamphlets.

Books and pamphlets issued on loan numbered 553 (571).

The catalogue of serial and official publications was maintained up to date (in quadruplicate), and at present comprises over 4,500 slips, many of which contain more than one entry.

The author catalogue was maintained up to date for books and separates, and the entomological contents of 167 volumes were catalogued during the year. The arrears amount to 2,746 volumes, the entire author catalogue being approximately 75 per cent. complete, and comprising some 110,000 cards. In addition, there is maintained a small subject index of monographs (1,200 cards).

Owing to enemy action, 36 volumes were lost while at the binders; a few of them have already been replaced, and it is hoped to make good others after the war.

#### Visitors

Owing to the war only four economic entomologists were able to visit the Institute during the year to discuss various problems in which they were interested. They were as follows:—E. Ballard (Chief Plant Protection Officer), from Palestine; G. S. Cotterell (Government Entomologist), from the Gold Coast; Dr. K. R. S. Morris (Medical Entomologist, Trypanosomiasis Campaign), from the Gold Coast; F. Wilson (Australian Parasite Laboratory), from France.

G. A. K. MARSHALL.

## APPENDIX II

## IMPERIAL MYCOLOGICAL INSTITUTE

## DIRECTOR'S REPORT FOR 1940-41

The continuation of the war through the year under review has naturally curtailed the normal work of the Institute, but the effect has not been without profit, for a long needed opportunity presented itself of overhauling the routine of the Institute which could hardly have been done without additional staff in peace time.

**Investigational Work**

As mentioned in last year's report, all new genera, new species, new varieties and new names of fungi have been listed at the Institute since 1st January, 1940. A list of those recorded up to the end of June, 1940, was published in July as Supplement 1 to the "Review of Applied Mycology," and a second list dealing with further records up to the end of December, 1940, was published in January, 1941, as Supplement 2. This service has met with appreciative support and it is hoped that it will be possible to continue to issue further supplements at six-monthly intervals with a cumulative index to the supplements at the end of five years.

During the year Major Dade continued his studies on *Aspergillus*, but was hampered by the difficulty of obtaining authentic cultures. His revised list of Gold Coast fungi and plant diseases appeared in "Kew Bull. 1940," 6, pp. 205-247, 1940.

Mr. Mason completed the Special Part of Fascicle 3 (List II) of "An annotated account of the fungi received at the Imperial Mycological Institute," and this was published in March, 1941. In this Fascicle Mr. Mason gives an account of his studies on a number of classical species which have never been described in culture.

Mr. Mason also published his Presidential Address to the British Mycological Society, "On specimens, species and names," in the "Trans. Brit. Mycol. Soc.", xxiv, 2, pp. 116-126, 1940.

Mr. Mason and Dr. Bisby's "List of British Pyrenomyces" referred to in the last year's report appeared in the "Trans. Brit. Mycol. Soc.", xxiv, 2, pp. 127-243, 1940.

Dr. Bisby completed a survey on cotton diseases, particularly those found in the Empire, undertaken at the request of the British Empire Cotton Growing Corporation. It is hoped that the survey will be published as part of a book on cotton pests and diseases in the near future.

Dr. Bisby collaborated with Miss Wakefield of the Royal Botanic Gardens, Kew, in the compilation of a list of British Hyphomycetes, which was published in the "Trans. Brit. Mycol. Soc.", xxv, 2, pp. 40-120, 1941.

He also prepared for publication an account of his study of some British Hysteriales, and the manuscript was accepted by the British Mycological Society for their "Transactions."

Dr. Ainsworth has continued his studies of the Ustilaginales, completing a list of the members of the group recorded from Uganda. This paper has been accepted for publication in the "Proceedings of the Linnean Society."

He has also devised a numerical method for characterizing smut fungi which promises to be a useful addition

to the technique of identifying members of this group. The paper embodying this information is expected to appear shortly in the "Trans. Brit. Mycol. Soc."

Dr. Ainsworth has served as a member of the joint committee of the British Mycological Society and the Association of Applied Biologists appointed to study the question of the official regulation of proprietary fungicides and insecticides. It is to be hoped that the considerable time and energy devoted by Dr. Ainsworth to this important work will bear fruit in the adoption of a scheme for the regulation of proprietary plant protectives in Britain.

Mr. Mason, Dr. Bisby and Dr. Ainsworth, as members of the Nomenclature Committee of the British Mycological Society, have taken an active part in the preparation of a further list of nomina generica conservanda, and a third paper recording the results of their studies appeared in the "Trans. Brit. Mycol. Soc.", xxiv, 3-4, pp. 282-293, 1940. Owing to the difficulty of arranging meetings of the Committee, these contributions are being suspended until the end of the war.

**Identification Work**

This side of the work of the Institute has necessarily been restricted on account of the war, the total number of specimens and cultures received during the year amounting to 280 only.

The Institute is indebted to Dr. Gordon, Canada, for the identification of several cultures of *Fusarium*. About 450 herbarium specimens of interesting fungi, of which ample material was available, have been prepared and despatched overseas in exchange for specimens received. All these despatches have safely reached their destination, except that a few specimens included in a consignment to India are missing. Following a distribution of 256 specimens about two years previously, this makes a total of over 700 of our more valuable specimens now widely distributed. This is an activity of the Institute which hitherto has necessarily been very restricted owing to pressure of normal work.

A start has been made on indexing the specimens in the herbarium of the Institute. Mr. Mason has long wished for this to be done, and it is greatly to be hoped facilities will be forthcoming for the work to be completed and the records kept up to date.

**Information Service**

Volume XIX of the "Review of Applied Mycology" and the index of Volume XVIII were published. The cost of printing and distributing the "Review" with the Supplement and Fascicle 3 (List II) of the "Annotated account of fungi received at the Imperial Mycological Institute" amounted to £934 18s. 8d., whilst receipts were down to £670 8s. 8d., leaving an adverse balance of £264 14s. 8d., of which £49 10s. 8d. is the cost of printing Fascicle 3. Owing to the large number of countries in enemy occupation the distribution of the "Review" had fallen in March, 1941, to 724 copies. Volume XIX comprised 832 pages, exclusive of the Index (111 pp.), and contained 1,620 abstracts.



From the start of the Institute the literature on plant diseases and allied subjects has gradually expanded, and one result of this constantly increasing pressure of abstracting work has been that no opportunity has hitherto been afforded of overhauling the cataloguing of the papers abstracted or filed in our collection of separates. During the year under review some modifications in the methods adopted have been introduced, with the result that a more or less complete bibliography of phytopathological literature is now being automatically built up. This should form a permanent index increasing in value year by year. This reorganization is not expected to be completed for some months, and it would have been almost or quite impracticable in peace time without additional help.

At the second Imperial Mycological Conference in 1929 a resolution was adopted stating that it is desirable to obtain full information in regard to the distribution of diseases of crop plants throughout the world. Provision for this work to be undertaken by the Institute never materialized, but the somewhat reduced volume of phytopathological literature abstracted during the year afforded an opportunity for some data to be accumulated by the abstractors regarding certain of the more important pathogens.

A number of enquiries were received from the Ministry of Economic Warfare during the year.

#### Staff

Major Dade returned to the Institute in May, 1940. There has been no other change in the staff during the year.

#### Miscellaneous

The inspection of cacao plants in quarantine in Kew was continued. Fire-watching of the Institute has been carried out by the staff.

S. P. WILTSHIRE.

#### ADDRESSES

##### The Executive Council,

2, Queen Anne's Gate Buildings,  
Dartmouth Street, London, S.W.1.

Secretary—Sir David Chadwick, K.C.M.G., C.S.  
C.I.E.

##### Imperial Institute of Entomology,

British Museum (Natural History), Cromwell Road  
London, S.W.7.

Director—Sir Guy A. K. Marshall, C.M.G., D.Sc.  
F.R.S.

Assistant Directors—S. A. Neave, C.M.G., O.B.E.  
D.Sc.

Publications Office, 41, Queen's Gate, London  
S.W.7.

W. R. Thompson, Ph.D., D.Sc., F.R.S.

Temporary Address—Imperial Institute of Entomology, Parasite Service, Belleville Laboratory  
Belleville, Ontario, Canada.

##### Imperial Mycological Institute,

Ferry Lane, Kew, Surrey.

Director—S. P. Wiltshire, M.A., D.Sc.

Assistant Director—H. A. Dade, A.R.C.S.

#### THE IMPERIAL AGRICULTURAL BUREAUX

Imperial Bureau of—	Director.	Deputy Director.
<b>Soil Science—</b> Rothamsted Experimental Station, Harpenden, Herts, England.	Sir E. John Russell, O.B.E., D.Sc., F.R.S.	G. V. Jacks, M.A., B.Sc.
<b>Animal Health—</b> Veterinary Laboratory, New Haw, Weybridge, Surrey, England.	Professor T. Dalling, M.A., M.R.C.V.S.	W. A. Pool, M.R.C.V.S.
<b>Animal Nutrition—</b> Rowett Research Institute, Bucksburn, Aberdeen, Scotland.	Sir John B. Orr, D.S.O., M.C., M.A., M.D., D.Sc., LL.D., F.R.S.	I. Leitch, M.A., D.Sc.
<b>Plant Breeding and Genetics—</b> School of Agriculture, Cambridge, England.	Prof. F. L. Engledow, M.A.	P. S. Hudson, Ph.D.
<b>Pastures and Forage Crops—</b> Welsh Plant Breeding Station, Penglais, Aberyst- wyth, Wales.	(Vacant).	R. O. Whyte, B.Sc., Ph.D.
<b>Horticulture and Plantation Crops—</b> East Malling Research Station, East Malling, Kent, England.	Ronald G. Hutton, C.B.E., M.A., D.Sc., V.M.H.	D. Akenhead, M.A., B.Sc.
<b>Animal Breeding and Genetics—</b> Institute of Animal Genetics, University of Edin- burgh, King's Buildings, West Mains Road, Edinburgh, Scotland.	Professor F. A. E. Crew, M.D., D.Sc., Ph.D., F.R.S., F.R.S.E.	J. E. Nichols, M.Sc., Ph.D., F.R.S.E.
<b>Agricultural Parasitology (Helminthology)—</b> Institute of Agricultural Parasitology, Winches Farm Drive, Hatfield Road, St. Albans, Herts, England.	Professor R. T. Leiper, C.M.G., M.D., D.Sc., F.R.S., F.R.C.P.	A. E. Fountain, B.A., F.L.A.
<b>Forestry—</b> Imperial Forestry Institute, 30, Museum Road, Oxford.	Professor H. G. Champion, C.I.E.	J. W. B. Sisam, B.Sc. in F., M.F.
<b>Dairy Science—</b> National Institute for Research in Dairying, Shin- field, Reading.	Professor H. D. Kay, O.B.E., Ph.D., D.Sc.	W. G. Sutton, M.Sc.

